Free and Open Source Software for Geospatial (FOSS4G) Conference Proceedings

Volume 16 *Bonn, Germany* Article 15

2016

Modelling concrete and abstract geoprocessing workflows with ILWIS 4

Rob Lemmens

Faculty of Geo-Information Science and Earth Observation (ITC), University of Twente, Netherlands

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Rob Lemmens

Faculty of Geo-Information Science and Earth Observation (ITC), University of Twente, Netherlands – r.l.g.lemmens@utwente.nl

KEYWORDS: Workflows; GIS; Remote Sensing; Geoprocessing; Semantic Web

ABSTRACT:

A workflow represents a combination of process steps to be handled by computers or humans. Geoprocessing workflows consist of geodata (satellite images, in-situ sensor data, human sensor data) and the operations needed for their storage, analysis and presentation. In this research we develop methods for creating and sharing geo-workflows between humans and computers to support knowledge sharing and system interoperability.

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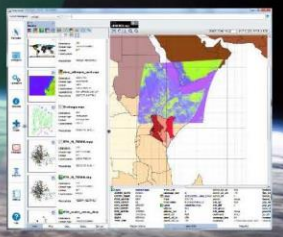
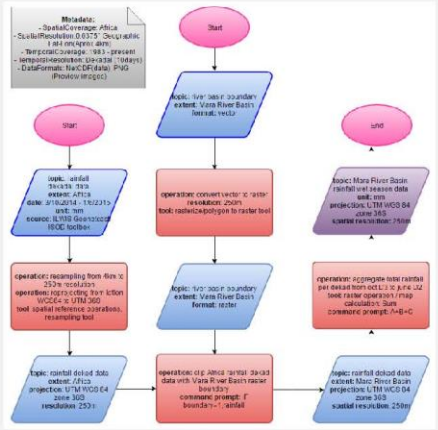


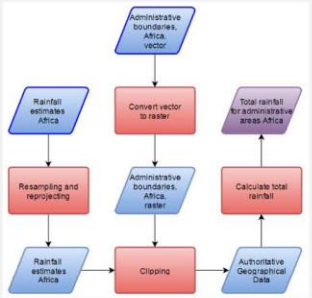
ILWIS 4 Graphical User Interface

Concrete workflow



A concrete workflow contains process steps which are executable by a specific software. The visualization represents the system logic. This workflow is executed in ILWIS (52north.org/communities/ilwis) [1] in the MaMaSe project (mamase.org).

Abstract workflow



An abstract workflow provides a general overview of process types and their input/output, without necessarily stating data sources and operation parameters. This allows users to create and grasp the general essence of the process steps. An abstract workflow can turn into a concrete workflow and vice versa.

Sharing workflows

Several process languages such as BPMN allow standardized sharing of workflows. We have developed a collaborative web environment using a semantic web-based exchange format in JSON-LD which allows both sharing between machines and humans [2]. Semantically enriched workflows can be visualized in a spatio-temporal explorer based on Linked Data [3].

Right: JSON workflow
Below: ILWIS workflow builder

References

[1] ILWIS Open Source GIS/RS software. Video introduction (2016) https://vimeo.com/user29453510/review/153355429/1c1a97df84

[2] De Carvalho Diniz, F. (2016) Composition of semantically enabled geospatial web services. Enschede, University of Twente Faculty of Geo-Information and Earth Observation (ITC), 2016.

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